



Appl. No. 09/914,537  
Attorney Docket 126505-1006

PATENT

THE UNITED STATES PATENT AND TRADEMARK OFFICE

Serial No.: 09/914,537

Art Unit: 1711

Applicants: Bleys et al.

Examiner: R. Sergent

Filed: December 13, 2001

Title: Process For Preparing Moulded Polyurethane Material

**Rule 1.132 Declaration Of Dr. Gerhard Jozef Bleys**

I, GERHARD JOZEF BLEYS, the undersigned, state the following:

1. I received the degree of Doctor of Philosophy in Chemistry from the University of Antwerp in Belgium.
2. I have been employed by Huntsman Polyurethanes since October 1, 1987 and my title is Senior PU Scientist.
3. I am co-inventor of, and familiar with, the above-identified U.S. Patent Application Serial No. 09/914,537, which was filed on December 13, 2001 in the name of Bleys et al. and entitled "Process for Preparing Moulded Polyurethane Material."
4. The primary references Bleys ('226), Bleys et al. ('779) and Eling et al. ('483) cited by the Examiner in paragraph 3 of the Office Action mailed October 6, 2004 all relate to the use of high oxyethylene containing polyols in the preparation of flexible polyurethane foams.
5. The Mackey ('409, '553, '528) references (hereinafter "Mackey") cited by the Examiner in paragraph 3 of the Office Action mailed October 6, 2004 all relate to an internal mold release composition useful in structural reaction injection molding applications.
6. To demonstrate the effect the Mackey mold release techniques have on a flexible polyurethane foam molding process, Example 1 of the above-identified patent application was repeated with the addition of a Mackey internal mold release composition to the reaction mixture. Thus, a flexible polyurethane foam was produced in an external mold release agent-treated metal mold from a reaction mixture containing a prepolymer, a polyol having a high oxyethylene content of 77% by weight, an amine catalyst, water and an internal mold release composition as taught in Mackey.
7. The prepolymer used in producing the flexible polyurethane foam was prepared by reacting 70 parts by weight of a polyol (a random polyoxyethylene-polyoxypropylene polyol having a functionality of 3, a molecular weight of about 4000 and an oxyethylene

content of about 77% by weight) with 30 parts by weight of a polyisocyanate (trade name Suprasec®).

8. The internal mold release composition used in producing the flexible polyurethane foam was prepared by mixing 2.5 parts by weight of oleic acid with 2.5 parts by weight of a fatty acid ester (trade name Kemester® 5721).

9. The prepolymer, polyol, amine catalyst, water and internal mold release composition were added to a container in the amounts set out below in Table A, mixed to form a blend, then poured into an external mold release agent-treated metal mold and allowed to react:

Table A

Ingredient	Amount (parts by weight)
Prepolymer	86.7
Polyol	11.8
Amine Catalyst	0.15
Water	1.38
Internal Mold Release Composition*	5

(\* The amount of internal mold release composition corresponds to the amount used in Form. 1 in Table 1 of Mackey.)

The flexible polyurethane foam produced according to the above procedure was severely collapsed and therefore inadequate for use.

10. In comparison, as described in Example 1 of the above-identified patent application, 52 flexible polyurethane foams were produced in an external mold release agent-treated metal mold in the absence of an internal mold release composition. Each flexible polyurethane foam produced in Example 1 could be easily demolded without damage to the foam and had an apparent overall density of about 75 kg/m<sup>3</sup>.

11. The above clearly demonstrates that the mold release techniques of Mackey are not applicable to the molding processes of the present invention and primary references.

I declare that all statements made of my own knowledge are true, and that all statements made on information and belief are believed to be true. I made these statements with the knowledge that willful false statements and the like are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and may jeopardize the validity of the application or any patent issued thereon.

Date

13 December 2004

Gerhard Jozef Bleys